6.7 Balances

Electronic balances are used in the Toxicology Unit to accurately determine the mass of reference standards, reagents, submitted samples, etc.

6.7.1 All balances shall be clean, maintained in good operating condition, and calibrated with certified weights to ensure the accuracy of results obtained.

6.7.2 All balances will have a calibration check before use, which will be good for 24 hours. These calibration check results shall be documented and include the date and analyst's initials.

6.7.3 Balances shall be checked and calibrated annually by an external authorized vendor. Documentation of this calibration shall be maintained in the balance logbook.

6.7.4 All calibration check weights shall be recertified every five years by an external authorized vendor. The certification shall be maintained in the Toxicology Unit. If for any reason these weights do not fall within the vendor acceptability criterion, they shall be removed from use and repaired or replaced with a new set of certified weights.

6.7.5 Calibration check weights shall be stored, handled, transported, and used following manufacturer recommendations.

6.7.5 Operating instruction manuals should be maintained in the Toxicology Unit.

6.7.7 Analytical balances

6.7.7.1 These balances are used to report masses in hundredths of a milligram and shall maintain accuracy to within ±0.05 mg.

6.7.7.2 If any of the calibration checks fall outside this acceptability criterion, manufacturer recommendations shall be followed as necessary to bring the balance back within specifications (e.g., auto calibration).

6.7.7.3 A calibration check shall be performed after any maintenance.

6.7.7.4 If the calibration check is still unacceptable after following manufacturer recommendations, discontinue use and call for service.

6.7.8 Electronic pan balances

6.7.8.1 These balances are used to report masses in hundredths of a gram and shall maintain accuracy to within ±0.05 g.

6.7.8.2 If any of the calibration checks fall outside this acceptability criterion, manufacturer recommendations shall be followed as necessary to bring the balance back within specifications (e.g., auto calibration).

6.7.8.3 A calibration check shall be performed after any maintenance.

6.7.8.4 If the calibration check is still unacceptable after auto calibration, discontinue use and call for service.

6.7.9 Balance operation

6.7.9.1 Ensure that the balance is turned on, level, and clean.

6.7.9.2 Perform a calibration check if needed (see section 6.7.2).

6.7.9.3 Tare the balance (if you are using weigh paper, weigh boat, or another type of container, tare the balance after placing it on the pan).

6.7.9.4 Place the sample to be weighed on the tared container and record the weight.

6.7.9.5 Remove the sample from the balance pan and dispose of the weigh paper or weighing container (clean the container if it is not disposable).

6.7.9.6 Clean the balance pan as necessary.

6.7.10 References

AT Analytical Balance Operator Manual, Mettler Toledo Gmbt, 1998.

Denver Instrument, Pinnacle Series Operation Manual, 602630.1 Rev F.

Weighing the Right Way with Mettler Toledo, Mettler Toledo Gmbt, 1998.